

IN THE CLAIMS:

Please re-write the claims as follows:

- 1 1. (Original) A method for initiating a peer-to-peer communication session, the method
2 comprising the steps of:
3 attempting a first remote direct memory access (RDMA) read operation directed
4 to a cluster partner;
5 performing, in response to a successful first RDMA read operation, a first RDMA
6 write operation to the cluster partner;
7 performing, in response to a successful RDMA write operation, a second RDMA
8 read operation directed to the cluster partner; and
9 performing, in response to a successful second RDMA read operation, a second
10 RDMA write operation to the cluster partner.
- 1 2. (Original) The method of claim 1 wherein the step of attempting a first RDMA read
2 operation further comprises the step of issuing a RDMA read operation to the cluster
3 partner requesting a pre-set memory address location that is associated with a status vari-
4 able on the cluster partner.
- 1 3. (Original) The method of claim 1 further comprising the steps of:
2 exchanging a set of peer connection information;
3 passing a set of client information to the cluster partner;
4 creating a set of appropriate communication ports;
5 alerting the cluster partner of a ready status; and
6 alerting a set of clients that the cluster partner is in a ready state.

- 1 4. (Original) The method of claim 3 wherein the set of peer connection information
2 comprises a version number.
- 1 5. (Original) The method of claim 1 wherein the step of passing a set of client informa-
2 tion to the cluster partner further comprises the steps of:
3 collecting, from a set of clients, the set of client information; and
4 transferring the collected set of client information to the cluster partner.
- 1 6. (Original) The method of claim 5 wherein the client information comprises a number
2 of communication ports required.
- 1 7. (Original) The method of claim 5 wherein the set of client information further com-
2 prises an amount of memory requested by a particular client.
- 1 8. (Original) The method of claim 1 wherein the cluster partner is a storage system.
- 1 9. (Original) The method of claim 1 wherein the cluster partner is an application server.
- 1 10. (Original) A storage operating system, executing on a storage system, the storage
2 operating system comprising:
3 a cluster connection manager adapted to initiate a peer to peer communication
4 session with a cluster partner upon initialization of the storage operating system.
- 1 11. (Original) The storage operating system of claim 10 wherein the cluster connection
2 manager further comprises:
3 means for performing a remote first direct memory access (RDMA) read opera-
4 tion directed to a cluster partner;
5 means for performing, in response to a successful first RDMA read operation, a
6 first RDMA write operation to the cluster partner;

7 means for performing, in response to a successful first RDMA write operation, a
8 second RDMA read operation directed to the cluster partner; and
9 means for performing, in response to a successful second RDMA read operation,
10 a second RDMA write operation to the cluster partner.

1 12. (Original) The storage operating system of claim 11 wherein the cluster connection
2 manager further comprises:

3 means for exchanging a set of peer connection information;
4 means for passing a set of client information to the cluster partner;
5 means for creating a set of appropriate communication ports;
6 means for alerting the cluster partner of a ready status; and
7 means for alerting a set of clients that the cluster partner is in a ready state.

1 13. (Original) A method for initiating a peer-to-peer communication session, the method
2 comprising the steps of:

3 performing a first remote direct memory access read operation directed to a clus-
4 ter partner; and
5 performing, in response to a successful first remote direct memory access read
6 operation, a first remote direct memory access write operation to the cluster partner.

1 14. (Original) The method of claim 13 wherein the first remote direct memory access
2 read operation is performed over a Virtual Interface connection having a pre-determined
3 and pre-assigned Virtual Interface Number and a pre-determined Fibre Channel ID.

1 15. (Currently Amended) A method for initiating a peer-to-peer communication ses-
2 sion, the method comprising the steps of:

3 (a) initiating a peer-to-peer communication session by attempting a first remote
4 direct memory access read operation directed to a predefined hardware address and a pre-

5 defined port number, the predefined hardware address and the predefined port number
6 previously known to support a RDMA operation; and

7 (b) performing, in response to a successful step (a), a first remote direct memory
8 access write operation directed to the predefined hardware address and the predefined
9 port number.

1 16. (Previously Presented) The method of claim 15 further comprising the step of:

2 (c) performing, in response to a successful step (b), a second remote direct mem-
3 ory access read operation directed to the predefined hardware address and the predefined
4 port number.

1 17. (Original) The method of claim 15 wherein the predefined hardware address com-
2 prises a fibre channel identifier.

1 18. (Original) The method of claim 15 wherein the predefined port number comprises a
2 virtual interface.

1 19. (Original) The method of claim 15 wherein the first remote direct memory access is
2 delivered to a predefined memory address storing booting status information.

1 20. (Original) A system configured to establish reliable peer-to-peer communication
2 among storage systems of a clustered environment, the system comprising:
3 a peer process executing on each storage system partner; and
4 a cluster connection manager executing on each storage system partner, the clus-
5 ter connection manager establishing a reliable peer-to-peer connection between each peer
6 process by connecting to a predetermined port number using a predetermined network
7 address.

1 21. (Original) The system of claim 20 wherein the reliable peer-to-peer connection is
2 established without requiring a storage operating system executing on each storage sys-
3 tem partner to be fully functioning.

1 22. (Original) The system of claim 20 wherein the peer-to-peer connection is a virtual
2 interface connection.

1 23. (Original) The system of claim 20 wherein the peer process is a cluster connection
2 client that requests services from the cluster connection manager.

1 24. (Previously Presented) A system configured to open an initial peer-to-peer connec-
2 tion over a cluster interconnect, the system comprising:
3 a storage system;
4 a cluster connection manager executing on the storage system, the cluster connec-
5 tion manager configured to establish a peer connection on a predetermined port number
6 and using a predetermined network address within the storage system; and
7 a process executing on the storage system, the process configured to use the estab-
8 lished peer connection for communication.

1 25. (Previously Presented) The system of claim 24 wherein the peer-to-peer connec-
2 tion is a virtual interface connection.

1 26. (Previously Presented) The system of claim 24 wherein the process executing on
2 the storage system is a cluster connection client that requests services from the cluster
3 connection manager.

1 27. (Previously Presented) The system of claim 24 wherein the process executing on
2 the storage system communicates with a cluster partner using the established peer con-
3 nection.

1 28. (Previously Presented) A system configured to accept the initiation of a peer-to-
2 peer connection over a cluster interconnect, the system comprising:
3 a storage system;
4 a cluster connection manager executing on the storage system, the cluster connec-
5 tion manager configured to accept a peer connection on a predetermined port number and
6 using a predetermined network address within the storage system; and
7 a process executing on the storage system, the process configured to read infor-
8 mation from the established peer connection.

1 29. (Previously Presented) The system of claim 28 wherein the peer-to-peer connec-
2 tion is a virtual interface connection.

1 30. (Previously Presented) The system of claim 28 wherein the process executing on
2 the storage system is a cluster connection client that requests services from the cluster
3 connection manager.

1 31. (Previously Presented) The system of claim 28 wherein the process executing on
2 the storage system reads information from a cluster partner.

1 32. (Previously Presented) The system of claim 28 wherein the information comprises
2 heartbeat signals.

Please add the new claims 33 *et seq.*:

1 33. (New) A method comprising:
2 initializing a first remote direct memory access (RDMA) read operation directed
3 to a specific cluster partner before a higher virtual interface layer has fully initialized, us-
4 ing a specific port number and a specific address that support a RDMA operations; and

5 performing a second RDMA read operation directed to a specific cluster partner
6 before a higher virtual interface layer has fully initialized, using a specific port number
7 and a specific address that support a RDMA operations.

1 34. (New) A system configured to accept the initiation of a peer-to-peer connection over
2 a cluster interconnect, the system comprising:

1 a storage system;

2 a cluster connection manager executing on the storage system, the cluster connec-
3 tion manager configured to initialize a first remote direct memory access (RDMA) read
4 operation directed to a specific cluster partner before a higher virtual interface layer has
5 fully initialized and use a specific port number and a specific address that support RDMA
6 operations; and

7 a process executing on the storage system, the process configured to use the estab-
8 lished peer-to-peer connection for communication.

1 35. (New) A computer readable medium for accepting the initiation of a peer-to-peer
2 connection over a cluster interconnect, the computer readable medium including program
3 instructions when executed adapted to:

4 attempting a first remote direct memory access (RDMA) read operation directed
5 to a cluster partner;

6 performing, in response to a successful first RDMA read operation, a first RDMA
7 write operation to the cluster partner;

8 performing, in response to a successful RDMA write operation, a second RDMA
9 read operation directed to the cluster partner; and

10 performing, in response to a successful second RDMA read operation, a second
11 RDMA write operation to the cluster partner.